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MLX90240

Pressure Sensor IC

Features and Benefits

0-350mBar Range
Compact Design
High Long Term Stability
Low Cost

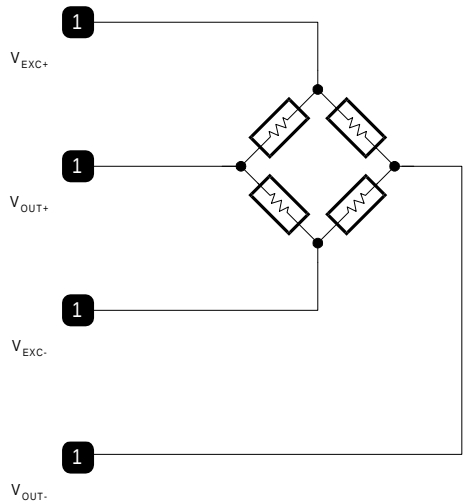
Applications

Medical Instrumentation (Blood Pressure)
Consumer Appliances
Sports Equipment
Pressure Difference and Flow monitoring

Ordering Information

Part No.	Temperature Suffix	Package	Temperature Range
MLX90240	S	CA	-20C to 85C Industrial
MLX90240	S	UD	-20C to 85C Industrial

Functional Diagram



Description

The MLX90240 is a discrete micromachined pressure sensor IC suitable for pressure ranges between 0 to 350mBar. The pressure medium must be dry and non-corrosive, such as air.
The 90240 is packaged in a plastic/ceramic package, (CA) or can be ordered as unpackaged die (UD) The principal of the circuit is a piezoresistive bridge which realized in silicon through a special micromachine process. As pressure is applied to the bridge, a differential voltage change is seen across the V_{OUT} pins, while a bias voltage is applied to the V_{EXC} pins.
The MLX90240 is a versatile pressure sensor solution which can be directly interfaced with other Melexis ICs such as the MLX90308, which provides amplification, signal conditioning as well as the bias current to supply the sensor itself.

MLX90240 Electrical Specifications

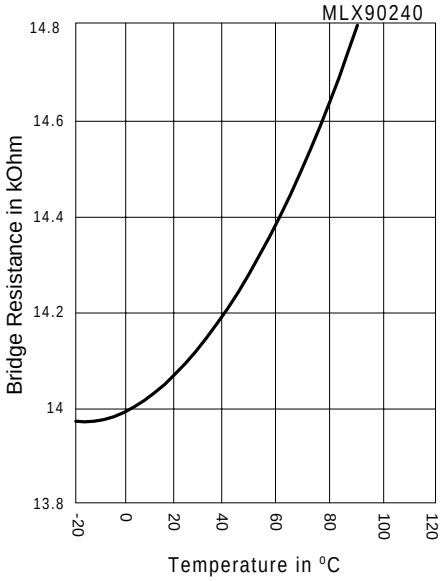
DC Operating Parameters T_A = 25C, V_{DD} = 5V, Pressure = 350mBar full scale.

Parameter			Min	Typ	Max	Units
Excitation voltage			0	5	12	V
Offset			-25	0	+25	mV
TC of the Offset			-15	-21	-25	µV/°C
Sensitivity			43	58	71	mV/V/bar
TC of the Sensitivity (1)			-0.17	-0.21	-0.26	%/°C
Bridge impedance			12	14	16	kOhm
TC of the Bridge (1)			0.057	0.063	0.066	%/°C
Non linearity (3)				+/- 0.15	+/- 0.30	%FS
Hysteresis					0.1	% FS
Offset Long term stability (2)					0.5	%FS
Sensitivity Long term stability (2)					0.3	%
Burst pressure			5x			FS pressure
Operating Temp			-20		85	°C
Storage Temp			-40		125	°C

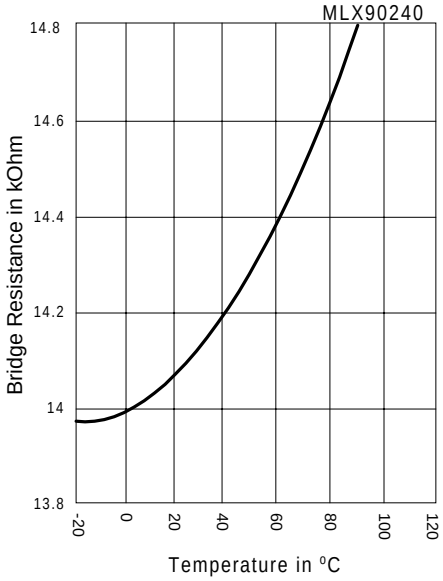
Notes:

1) Between 0 and 70°C
2) After: 100 thermos cycles 0 – 70°C
3) 1 mil pressure cycles 0 – 350 mbar
4) Typical 0.5% FS for 0-500 mbar range

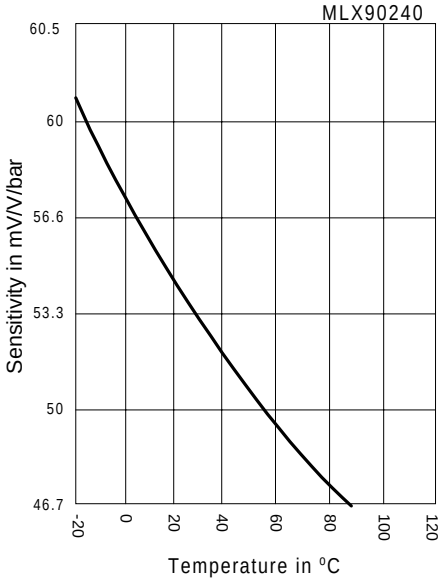
Bridge Resistance versus Temperature



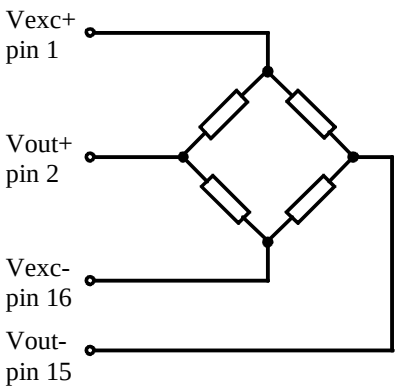
Bridge Resistance versus Temperature



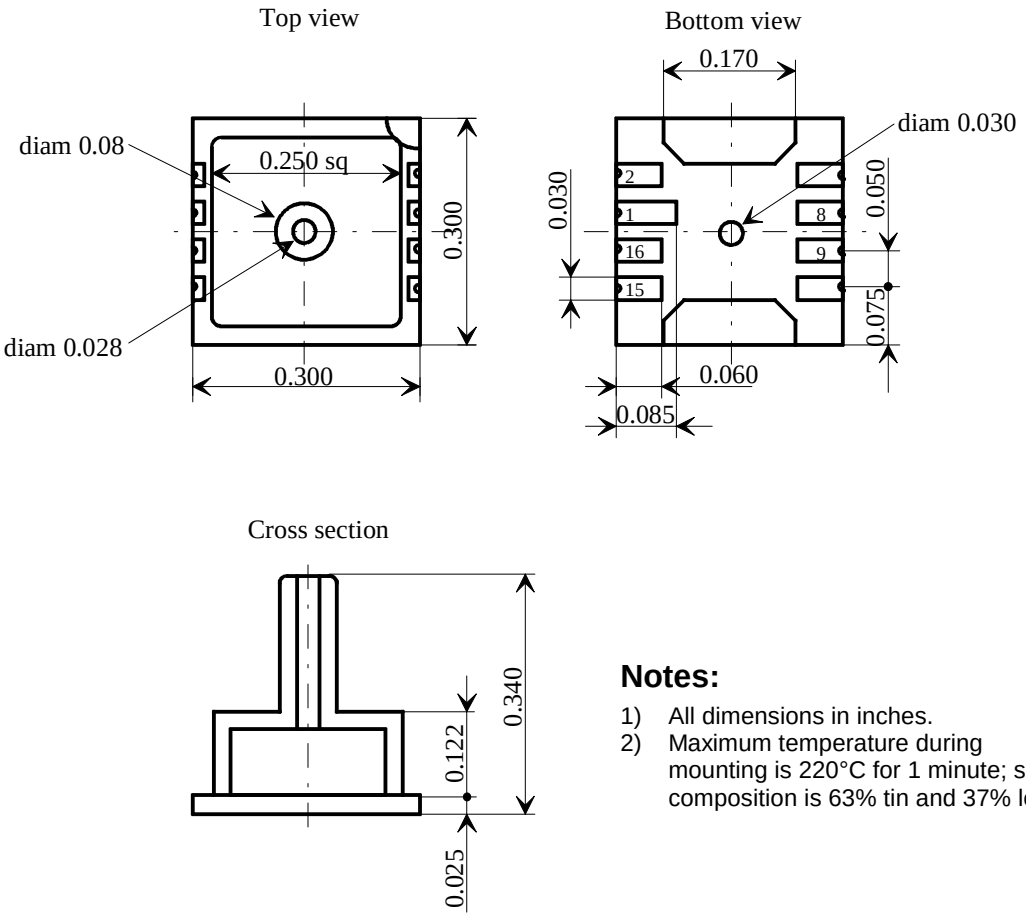
Sensitivity versus Temperature



MLX90240 Pin Description



"CA" Package Dimensions



Notes:

1) All dimensions in inches.
2) Maximum temperature during mounting is 220°C for 1 minute; solder composition is 63% tin and 37% lead.

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